ECTA RESPONSE

TO THE PUBLIC CONSULTATION BY THE RPSG

ON

STRATEGIC SPECTRUM ROADMAP TOWARDS 5G FOR EUROPE
2ND DRAFT RSPG OPINION ON 5G NETWORKS

RSPG17-034

6 JANUARY 2018

1) Introduction

ECTA, the European Competitive Telecommunications Association, representing more than 100 challenger electronic communications operators and digital communications companies, welcomes the RSPG`s invitation to comment on the draft Second Opinion on 5G Networks under the heading of a Strategic Spectrum Roadmap towards 5G for Europe.

ECTA is convinced that this consultation makes a timely contribution to the overall process driven by the European Commission and Member States to ensure that the EU and its operators can take the lead in spearheading the global transition to 5G.

To make sure that objectives such as achieving coverage in urban areas and along major transport paths by 2025 can be met, it is critical that national and EU spectrum management strategies project a realistic business case for market participants. Defining the right framework in terms of technical and spectrum access conditions is key to industry engagement, relieving pressure for public financing and creating a viable ecosystem that delivers socioeconomic benefits by full exploitation of 5G´s innovation potential.

Innovation under the fifth generation of mobile communications should enable more adaptive, more flexible and more targeted service delivery and more effective and more efficient spectrum use. This means that spectrum management and strategy need to evolve to accommodate an environment in which an increasing number of spectrum users can be served by an increasing number of solutions providers.

5G therefore presents an important opportunity to promote competitive market functioning that underpins innovative effort. ECTA commends the unambiguous recognition in the draft opinion that both incumbents and challengers (including new entrants) will have a role to play in making good on the innovation promise that is 5G. ECTA also agrees with RSPG that flexibility and innovation will become increasingly important features of spectrum management practices.

To realise the 5G ambition for Europe requires local responses based on a European framework. Common standards can enhance regulatory predictability and facilitate better solutions if they remain attuned to the needs of effective competition. Below, we set out our shared vision of how the second RSPG Opinion on 5G Networks can help to define such a framework. In annex, ECTA provides proposed redrafting to address the points raised in the following sections.

2) ECTA`s vision for a competitively sustainable introduction of 5G

2.1. Time is of the essence

The international process for establishing common 5G specifications at a technical level has been planned to conclude its work in 2020. The European Commission`s 5G Action Plan foresees the launch of fully commercial services by the end of that year.

ECTA shares the vision of promoting 5G leadership in the EU as a common ambition for the electronic communications industry, both to advance innovation and to promote the greatest possible diversity of applications becoming available at a pace that allows Europe`s economy and society to fully benefit from the fifth generation of mobile technologies.

Introducing 5G is a process in which commercial, regulatory and technological considerations overlap. In particular, electronic communications providers need to foresee the allocation of the resources necessary to prepare and execute the necessary adjustments in operational processes, network components and product design.

ECTA considers that timely decisions in the regulatory dimension are required to support the business adjustments processes. This also requires a sufficiently wide scope of vision to ensure that all relevant parts of the puzzle will fall into place in time for EU leadership in 5G to materialise.

The political objectives set by the Commission of ensuring at least one urban 5G deployment by 2020 and connectivity along major transport paths and in urban areas by 2025, will be complemented by national spectrum roadmaps. The Action Plan comprises a number of intermediate objectives on the way to 2020.

The draft opinion reflects these timeline pressures, first, when it refers to the need to consider appropriate defragmentation measures for the 3.6 GHz band in order to allow authorisation of sufficiently large blocks by 2020, and, second, when calling on Member States to make a sufficiently large portion of the 26 GHz band available by the same date.

Overall, ECTA welcomes these calls to action and agrees for it to be necessary to align spectrum management practices in terms of allocation as far as possible with industry development efforts. Only where these development trajectories are clarified sufficiently in advance, can operators realistically adjust their network planning and investment strategies in a timely manner.

At the same time, ECTA considers that the criticality of timing of the preparation for the introduction of 5G is not fully reflected throughout the opinion and its annex. In particular as regards network investment, no explicit consideration is given to pre-existing operator commitments that are currently being executed in preparation of the introduction of 5G. In certain jurisdictions, this is, for example, already the case in the 3.6 GHz band. ECTA therefore believes that the opinion should state more clearly that where such efforts are already under way within the existing licensing framework, the authorities should clearly account for such efforts in setting out their management approach to the band concerned. Elaboration of such an approach should account for the competitive realities of mobile and related markets (see section 2).

Specifically for the 3.6 GHz band, this means that where the band has already been assigned for the provisioning of electronic communications services and such services are effectively being offered or networks for their provisioning being rolled out, the necessary management adjustments will need to take account thereof. For these situations, the opinion should clarify that band defragmentation does not have to, and indeed should not, imply revocation of existing usage rights, without prejudice to the possibilities already offered under the regulatory framework. While the role of 3.6 GHz as primary 5G band offers a welcome opportunity to overcome the historical fragmentation that resulted from the two-phased EU harmonisation process, this must occur with respect for existing electronic communications service use, so as to avoid chilling ongoing industry efforts to prepare for the introduction of 5G in this band. Defragmentation of the band should accordingly focus on the relationship with other primary services and be complemented by a coherent authorisation strategy, taking account of the objective of equitable

spectrum access for 5G operators. These authorisation strategies should be made subject to public consultation, form an integral part of national 5G roadmaps and be published widely to ensure the highest possible degrees of transparency and stakeholder involvement. ECTA suggests that the RSPG invite administrations not yet having adopted their roadmap, to do so by mid-2018, to ensure that the commencement of trials in key sectors can start with a reasonable degree of certainty about the future evolution of regulatory framework conditions, even where the precise character of these conditions remains yet to be defined. ECTA underlines that the facilitation of trading and leasing alone does not constitute a sufficient mechanism to allay operator concerns over regulatory uncertainty in this respect.

From a timing perspective, ECTA further believes that the opinion should call on Member States to link their 5G strategies to the ongoing negotiations on a future framework for electronic communications, as it is currently being discussed in the form of the European Electronic Communications Code (EECC). This, in ECTA`s view, forms part of a unified vision for 5G, which should guide regulatory policy (see section 2.5). Only by setting out how different phases of the introduction of 5G will fit with the different regulatory frameworks that will be in place at each stages of that process, can Member States enable electronic communications providers to take their strategic adjustment decisions with confidence in adequate predictability of regulatory framework conditions. ECTA remarks in this context that discussions have taken place in interinstitutional negotiations about the establishment of a target date for making available the 3.6 and 26 GHz bands. By indicating its views on the appropriateness of such a solution and possible target dates in the context of its opinion, RSPG could significantly contribute to enhanced clarity on stakeholders` behalf about the likely timelines for bringing 5G to market. In any case, ECTA believes it to be critical that regulatory framework conditions are set well ahead of 2020 for the objective of commercial 5G operation becoming effective with the conclusion of technical specification work to be realised.

In summary, ECTA invites RSPG to ascertain the greatest possible clarity as regards the timing and the procedural framework for the introduction of 5G. In particular, ECTA asks RSPG to appropriately qualify the attainment of specific target dates by specifically referring to other factors requiring consideration in that context, as relevant. Anticipation of additional future deployment activity should not lead to leaving ongoing efforts stranded. Defragmentation should therefore primarily focus on removing coexistence concerns in order to ensure a clear value proposition for electronic communications providers. Member States should invoke the need of withdrawing already granted rights of use sparingly and only with a clear and thoroughly substantiated justification, subject to the rules of the existing regulatory framework. Finally, spectrum managements strategies in support of the introduction of 5G, including national 5G roadmaps, need to be clearly aligned with the foreseeable evolution of that framework.

2.2. Promoting a competitive 5G environment

5G technology promises to enhance choice and application diversity. It is furthermore likely to profoundly affect existing network operations by integrating different preceding generations of mobile communications technologies under one roof. This means that this next generation wireless technology comprises two potentially countervailing competitive dynamics by, on the one hand, facilitating integration and thus further consolidation of mobile network assets and

operational processes, while, on the other hand, allowing for a greater diversity of targeted solutions to be delivered over these networks. It is the latter dynamic that, ultimately, will transform the traditional understanding of mobile networks to become functionally more rich and diverse.

In ECTA`s view, the draft opinion and its annex put appropriate emphasis on the dimension of application diversity and new services as a hallmark of 5G networks, but does not provide sufficient focus on competitive considerations of the transition process that will lead to the introduction of 5G. While Member States should indeed consider whether competition among operators will drive timely migration to 5G, ECTA is of the view that there is no simple bifurcated answer to this question, as the annex appears to suggest.[1] As already outlined in the preceding section, `regulatory intervention´ will indeed be central to shaping the transition process. This intervention will not only be limited to the question of the territorial scope of future usage authorisations, but play a critical role in pacing the process and configuring key parameters that will shape operators` appetite to engage in the 5G transition and choosing the precise manner for doing so.

ECTA considers that regulatory decisions bearing on the distribution of spectrum resources, and notably on the assignment of usage rights in the pioneer bands,[2] should be rooted in a comprehensive appraisal of the competitive situation in the domestic market in the light of the innovative potential of 5G technologies. This, in ECTA`s belief, is a key precondition for ensuring that the promise of new services and diverse applications can be paralleled by a diversification of opportunities at the level of transmission solution providers. To this end, it must be avoided that the opinion or its annex suggest a specific market outcome, such as when suggesting that business applications needs could largely be covered by mobile providers and pitting these against niche players.[3]

As the transition to 5G will also occur outside the designated pioneer bands, assessments of market functioning inevitably need to provide for a holistic appraisal of the overall competitive situation. This appraisal, in turn, should inform the modalities according to which the pioneer bands will be made available.

The fact that the European 5G vision includes three different frequency ranges to accommodate different classes of application characteristics underlines the need to adopt a wider and more strategic approach than what may traditionally have been the case, especially for challengers or potential new entrants in 5G. ECTA therefore believes that Member States should consult widely on the cornerstones of their future spectrum management approach and integrate this with their domestic 5G roadmaps. Considering the investment required to realise the network densification that 5G entails, it will be critical to facilitate sharing and avoid unduly slowing down the 5G transition by failure to realize its competitive potential.

[1] RSPG17-034, 21.11.2017, p. 16.

[2] In the context of this consultation, ECTA understands the pioneer bands to include, in line with the RSPG Opinion on spectrum-related aspects for next generation wireless systems (5G) (RSPG16-032, 9.11.2016), and notably point 10 thereof, bands in all of the three frequency ranges identified for 5G use (<1 GHz, between 1 and 6 GHz, and >6 GHz), i.e., 700 MHz, 3.6 GHz and 26 GHz.

[3] RSPG17-034, 21.11.2017, p. 14.

Competent authorities should take into account all appropriate pro-competitive measures and approaches when establishing their 5G spectrum management strategy, with particular emphasis on forthcoming assignments procedures, such as reserving spectrum to new entrants or operators with a significant deficit of spectrum,[4] designing inclusive procedures to allow participation of new entrants or operators with a deficit of spectrum and including in licenses access and sharing conditions. This is particularly evident in respect of the 700 MHz band, which will be key for coverage, considering that many challenger operators have had to conduct market entry in higher bands and therefore will need to obtain complementary lower-band frequency resources.

To promote the development of a competitive basis in electronic communications from which a wireless 5G ecosystem can develop, ECTA considers that the link between competitive sustainability and environmental characteristics that are geographically specific and material in shaping deployment decisions has to be given a central role. On the one hand, this may render geographical partitioning of usage rights a possible means of facilitating more equitable spectrum access, as the RSPG recognises. On the other hand, where it is readily foreseeable that the economics of network density will render infrastructure deployment by multiple operators competitively unsustainable, this should lead to sharing being actively considered as a means of facilitating competition. For the latter case, authorities should provide market participants with sufficiently precise indications as to the criteria and assessment standards they will be applying to determine a lack of competitive sustainability. These choices should be consulted upon to allow for input by all relevant stakeholders and enable electronic communications providers to devise their strategies subject to an adequate degree of regulatory predictability.

The second principal pillar of a competitive 5G environment should, in ECTA`s view, be technologically neutral licence conditions. This means that operators providing electronic communications services should be given confidence that their technology choices do not pre-empt them from continuing to play a competitive role in the future 5G environment. While 5G builds on existing mobile communication technologies, this should not preclude consideration of other wireless technologies (such as different fixed wireless access solutions), where these enable service delivery in accordance with 5G technical specifications. At the same time, administrations should make sure that the operational conditions are specified in a manner that ensures the most effective and efficient spectrum use possible. Consistent herewith, ECTA believes that Member States should ensure that competent authorities in the process of defragmenting the 3.6 GHz band should take utmost account of the use that current licensees are making of this band in their 5G roadmaps.

The results from key industry trials to be launched in 2018 should inform identification of the key performance requirements in negotiation between electronic communications providers and verticals in this respect. ECTA agrees that Member States in devising their regulatory approaches should respect these agreed industry norms, while basing their ultimately agreed strategies on a comprehensive competition assessment as suggested above.

[4] The significance of such a deficit must be assessed in terms of both quantitative and qualitative considerations, i.e. the amount of usable spectrum resources, both globally and per band, and the bands and frequency ranges in which they are held.

In this respect, ECTA urges the RSPG to edit points 8 of the draft opinion concerning the 3.6 GHz band to include the necessity of considering competitive conditions such as current use of the band and innovation potential. The same point of the opinion should clarify that `sufficiently large blocks´ must effectively balance between competitive considerations and maximisation of channel bandwidth. Similar considerations should apply in relation to point 9 concerning the 26 GHz band. Overall, ECTA believes that the subject of existing licences in the pioneer bands, which the present supplementary opinion was intended to study,[5] requires further reflection and should remain on the RSPG`s agenda, including in its Work Programme for 2018 and beyond.

Taken together, ECTA invites the RPSG to explicitly introduce the dimension of competitive assessment into the opinion and extend its elaboration in the accompanying annex. In particular, the opinion should not remain limited to considering market demand as a determining factor of 5G strategies, but also reflect supply side considerations more directly. Geographical partitioning should be considered as one possible means in domestic authorities` toolbox to facilitate equitable and efficient spectrum access, and ECTA agrees with RSPG that differences arising from the need to accommodate incumbent users should be reflected in the assessment of likely prospective market developments from the viewpoint of competitive sustainability. Where network economies are such as not to allow network duplication, sharing possibilities should form another means of fostering pro-competitive market outcomes. In sum, Member States should ensure that devising of national spectrum management policies towards 5G are appropriately comprehensive, including analysis of the interaction between spectrum holdings in the three pioneer band frequency ranges, and set against an appreciation of future competitive dynamics. Future RSPG work should pursue further the issue of existing licences in the pioneer bands, as originally committed to in its first opinion on 5G.

2.3. Need for flexible backhaul solutions

ECTA agrees with RSPG that a key consideration for the successful introduction of 5G technology for the provisioning of electronic communications services is the availability of appropriate backhaul capacity to enable the transition to ultra-dense network architectures, where this is necessary according to usage setting.

ECTA further agrees that fibre to the base station is the most potent solution for ensuring availability of adequate backhaul capacity. Indeed, already today, fibre-based backhaul arguably is an absolute necessity for competitive service delivery and there must be no presumption that issues regarding access to such backhaul could be effectively mitigated with fixed link solutions.

Nevertheless, it appears necessary to also recognise the important contribution that wireless backhaul solutions are capable of making in the transition to 5G. ECTA considers that the presentation in section A.3 of the draft opinion would benefit from a more balanced presentation in this respect and would suggest a clearer differentiation of the relevance of backhaul provisioning according to the temporal perspective chosen.

In the short and medium term, ECTA believes that existing fixed link solutions will remain an integral part of overall network design, especially in those locations where fibre roll-out is

[5] RSPG16-032, 9.11.2016, pt. 10.

unlikely to occur for reasons relating to network topology or the economics of network density. In those settings, the most appropriate way forward for backhaul provisioning might be continued reliance on high frequency range spectrum, as in 26 GHz, paired with a downward adjustment in the frequency usage fees to enable backhaul with a radio link-based network. Such a differentiated pricing solution could contribute to strengthening the business case for ensuring end-to-end 5G functionality also in rural and other sparsely populated areas that would otherwise likely remain entirely cut off from 5G deployment. Assurance of adequate wireless backhaul availability might thus be one appropriate building block to strengthening the case for 5G in such settings, which could prospectively be combined with research into new technology to support 5G-related policy objectives also in those areas if network densification is not immediately possible. ECTA accordingly supports the RSPG proposal to examine coexistence scenarios in the 26 GHz band to facilitate continuation of fixed link backhaul alongside access services.

Even if fibre roll-out may provide a long-term solution for network densification in conurbations, it appears premature at this stage to conclude, as suggested at p. 11 of the draft, to the irrelevance of fixed link applications over this timeframe in other geographical settings. Without at least intermediate results from investigations into technological alternatives and/or possible migration trajectories, ECTA would therefore rather suggest to keep a more open perspective, which as a baseline acknowledges the continued relevance of wireless backhaul as a solution where fibre is not available. Appropriate means to this end in the opinion would be inclusion of backhaul solutions into research funded under the European Commission`s research programmes, recognising the potential continued use of the 26 GHz band for backhauling, and reference to the need for taking into account the results of coexistence studies, in addition to market demand. These studies should also contribute to the identification of criteria for assessing under which circumstances adequate coexistence cannot be achieved to provide authorities with guidance in making their assessments.

Based on the above considerations, ECTA considers that the most appropriate approach to clearing the 26 GHz band would appear to be progressive in nature, without prejudice to the approach taken towards the 3.6 GHz band, which does not support backhaul functionality.

In conclusion, ECTA stresses that fibre is the first-best option for backhauling and that there must be no presumption that issues regarding access to such backhaul could be effectively mitigated with fixed link solutions. Nevertheless, ECTA asks the RSPG to present the case for wireless backhaul solutions in a more balanced manner, for even where a business case to deploy fibre exists, the timing and capacity constraints for large-scale deployment imply that fixed backhaul is unlikely to fully accommodate 5G requirements in the near or intermediate future.[6] In other locations, such a business case may never come into being. ECTA emphasizes that what is critical to competitors and their clients alike is the availability of appropriate backhaul solutions on competitive terms. Therefore, ECTA suggests that the opinion specifically with regard to the 26 GHz band explicitly (i) recognise the potentially continued relevance for backhaul solutions, (ii) require consideration of technical study results in addition to market demand, and (iii)

[6] Furthermore, ECTA would also underline that fixed link solutions may be beneficial for competition because they allow parties to remain independent in managing these links (subject to adequate technical expertise, which wireless service providers will likely possess) and because of the cross-price pressure that alternative backhaul infrastructure can exert.

suggest inclusion of research on this band in the work programmes for Commission-funded research.

2.4. Enforcement is key

ECTA welcomes the importance that RSPG attaches to the contribution of effective enforcement to the achievement of 5G objectives when discussing coverage and roll-out obligations. Sharing the vision that effective and efficient use of scarce spectrum is key to ensuring delivery on these objectives, ECTA wants to highlight three points of special importance in this regard:

First, ECTA would underline that clarity of the conditions to which operators are subject when operating 5G networks is key to making investment, deployment and operation plannable and thereby contribute to the successful achievement of 5G objectives. In this respect, ECTA welcomes the joint work that RSPG has been conducting with BEREC on mobile connectivity in challenge areas. As expressed in that context,[7] ECTA believes that collaboration between authorities responsible for the market-shaping and for the technical-administrative aspects is generally desirable to ensure that effective and efficient spectrum management also contributes to the promotion of competition. From this perspective, it is imperative that clarity of licence conditions is equally applicable to all licensees and that, where relevant, these are further publicized for possible third party beneficiaries and other interested parties to have access to all relevant information. Notably at a point where the initial authorisation of 5G use is at issue, and lock-in effects may have a particularly unbalanced impact on market dynamics, it is critical to ensure that such clarity not only facilitates compliance, but also enables private enforcement where relevant.

Secondly, there is a need to ensure consistency in enforcement. This means that NRAs should take an overall consistent approach to the enforcement of licensing conditions irrespective of, e.g., the specificity of services fulfilling coverage or roll-out obligations. Otherwise, differences in enforcement strategy may have negative repercussions for the onset of 5G technology in the marketplace. Especially administrative delays in making bands effectively available and in ensuring their efficient use introduce unwarranted discrimination between operators. Where the solution facilitated by such differential spectrum management practices, e.g. rural FWA provisioning, could also be provided with a lower or older generation of technology, it is important to realize that operators should retain the greatest possible leeway to choose how to drive 5G introduction, while taking account of the requirements to ensure effective and efficient use of 5G spectrum resources.

Finally, ECTA believes that enforcement strategies must be appropriately comprehensive to ensure that all obligations are consistently enforced. In particular, it has to be avoided that regulatory arbitrage occurs due to anticipated lapses in enforcement of certain conditions. Therefore the notion of regulatory predictability should not only imply a clear commitment on responsible authorities´ behalf to ensuring the clarity necessary to make the precise compliance requirements adequately foreseeable, but also certitude that enforcement of applicable obligations is effective so as to dissuade regulatory gaming. This certitude needs to extend to all types of regulatory obligations imposed, and ECTA would therefore invite the RSPG to emphasize

[7] See *ECTA response to the public consultation by BEREC and RSPG on the draft BEREC and RSPG Joint Report on Facilitating Mobile Connectivity in `Challenge Areas´ BoR (17) 185*, 28.11.2017, p. 1.

that coverage and roll-out obligations should not enjoy a special status in this regard. ECTA would furthermore suggest that the opinion under the heading of enforcement introduce a commitment for authorities to design a specific enforcement strategy for 5G spectrum usage authorisations in parallel with the authorisation strategy, so as to enhance regulatory predictability and trust among market participants.

In sum, ECTA invites RPSG to integrate the enforcement focus in the annex to the opinion in the opinion itself and complement this with a recommendation to Member States to ensure the greatest possible clarity in licensing conditions and adhere to a specified, consistent enforcement strategy, covering all conditions of authorised spectrum use.

2.5. The need for a unified approach

The launch of 5G in the Union will not be a fully streamlined process. Operators need to adapt their business models, networks and organisation to ensure that the introduction of 5G integrates effectively into their competitive strategy. This includes the identification of market opportunities and appropriate technical solutions within the range of possibilities that 5G enables. Similarly, spectrum managers need to devise their strategies in a manner enabling such adjustments to occur with a reasonable degree of certainty.

ECTA recognises the commitment that the members of RSPG make in their daily work to ensuring that the objectives of optimal spectrum use and competition, which are common to all aspects of the EU framework for spectrum management, are met.

Under the Estonian Presidency, the ministers responsible for electronic communications agreed to a common roadmap for the introduction of 5G. While ECTA shares RSPG`s concern over ensuring the most timely advance towards this end, ECTA also considers that a blanket rejection of any type of harmonisation measures in respect of regulatory obligations may not be fully consistent with this objective.

ECTA therefore calls on RSPG to explicitly recognise the prospective role of the European Electronic Communications Code in promoting improved spectrum management practices, including in a 5G context, and notably the pro-competitive tools foreseen in this regard under Article 52 of the proposal, as amended. In particular, ECTA would invite RPSG to provide input on the frequency and effectiveness with which these tools have been used thus far and identify possible best practices in this respect. An integrative view of how current and future rules will affect the framework conditions for 5G deployment is crucial since only the first wave of activities will still be subject to the current regulatory framework. This means that the bulk of activities to make 5G a product for mass market and special use applications will continue under the EECC. It will therefore be valuable to extract lessons from RSPG members` experiences on issues of potentially significant practical importance for the future deployment of 5G networks and bringing into use of pioneer bands, such as the implementation of sharing models, the adjustment and review of licence conditions and appropriate usage incentivisation mechanisms, among others, as far as possible. Furthermore, it would appear appropriate for the RSPG to make use of its right of initiative to submit its views on the suitability of the amendments proposed in the ongoing legislative process to further the coordinated introduction of 5G, notably with a view to promoting competition and achieving the best possible use of pioneer spectrum in each of the

three band ranges identified. This assessment, informed by the RSPG members` experience, should lead to a Second Opinion on spectrum issues in the proposal for the European Electronic Communications Code ahead of its final approval in the first half of 2018.

Specifically as regards the question of regulatory obligations, where these are understood as conditions attached to the authorisation of spectrum use, ECTA considers that the possibility of harmonising these should not be excluded as a matter of principle. While the scope of such harmonised obligations and the precise type of instrument by which such alignment is to be achieved would remain subject to agreement, it appears clear that certain of these conditions today are implemented in a very diverse manner across Member States and that this diversity may impair the achievement of EU leadership in 5G. The inclusion of electromagnetic field radiation limits in usage authorisations is an example of a condition that will likely have significant impact on the deployment topology and operation of 5G networks.[8] Service quality requirements, including reliability, may constitute a further such condition. ECTA would therefore encourage the final version of the draft opinion to clarify that the range of relevant regulatory obligations reaches beyond the dichotomy of coverage and roll-out obligations, and that harmonisation of obligations of a primarily operational nature might constitute a suitable matter for harmonisation. This point could appropriately be developed in a Second Opinion on spectrum issues in the proposal for the European Electronic Communications Code.

Moreover, as regards the role of infrastructure deployment and facilitating measures to this end, ECTA considers that RSPG could include in the body of the opinion a call for Member States to identify best practice examples of the orchestration between spectrum management and other competent authorities that have enabled licence conditions, e.g. regarding coverage, to be effectively discharged. This would provide a relevant complement to the considerations regarding backhaul availability (see section 2.3 above).

Overall, ECTA therefore invites RPSG to acknowledge the link between the present draft opinion and the European Electronic Communications Code, and similarly take account thereof in its forthcoming Work Programme for 2018, with a view to providing updated input on the basis of its members` experiences.

[8] Not all countries comply with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) recommendations for power density limits of 10 W/m^2. In the EU, the problem is particularly evident in Bulgaria, Poland and Italy, where either the entire country or selected areas are limited to 0.1 W/m^2. To build a 5G network under such conditions requires steps that are detrimental to mobile connectivity, e.g. reducing the capacity of already operating base stations (which reduces the range and quality of services provided to customers of 4G and older technologies, particularly indoor) and building a much larger number of base stations (which increases CAPEX and administrative burdens and slows down build out). The lack of harmonised power density limits also creates a significant technical problem in terms of network design and for the development of a coherent 5G network standard.

Annex: ECTA`s proposals for amendment (in *italics*)

The RSPG Second Opinion on 5G networks

The RSPG recognises that 5G promises to enable the delivery of a diverse set of applications and new services in a number of different markets, going beyond the traditional mobile broadband market*, and thus to enhance competition and innovation in wireless communications*.

1. **The RSPG is of the opinion** that Member States will need flexibility in the way they authorise access to spectrum, for example: appropriate geographical areas (e.g. national, regional, city or hyper-local, e.g. for use in a factory), individual licencing or under a general authorisation framework.

2. **The RSPG is of the opinion** that the Commission, together with Member States, should take actions to fully support 5G related policy objectives in rural areas and wide coverage, taking into account the role of satellite *and fixed wireless access* in achieving ubiquitous connectivity.

3. **The RSPG recommends** that the Commission, in its research work-programs, study solutions for improving 5G connectivity and wide area coverage, *including backhaul,* especially in rural areas, thereby facilitating and progressing technology developments targeting the fulfilment of 5G related policy objectives.

4. **The RSPG is of the opinion** that service performance and availability requirements may be relevant for some 5G cross border services to fully function and would need to be defined by the industry in a timely manner. In some cases an EU coordinated approach could be helpful in this regard to support a common European solution.

5. **The RSPG is of the opinion** that coverage obligations can only be derived as a consequence of national policy objectives and characteristics (i.e. population distribution, geographical morphology, industrial and societal needs) and therefore cannot be harmonised on a EU-level.

6. **The RSPG notes** that solving issues relating to facilitating the efficient deployment of ultra-dense networks is expected to be of high importance for the rollout of 5G in dense urban areas. **The RSPG is of the opinion** that Member States should assess the need for national actions that will enable easier site authorisation and installation, in particular for small cells, in order to make timely 5G deployment possible.

7. **The RSPG is of the opinion** that all commercial licences in frequency bands identified for 5G within the Member States should be subject to trading or leasing to enable new market opportunities.

8. **The RSPG is of the opinion that** Member States should consider appropriate measures to defragment the 3.6 GHz band, the primary 5G band, in time for authorising sufficiently large blocks of spectrum by 2020, *which balance competitive considerations and maximisation of channel bandwidth, taking into account current use and innovation potential.*

9. **The RSPG is of the opinion that** in relation to the 26 GHz pioneer band (24.25-27.5 GHz):

    - the focus of 5G authorisations in the 26 GHz band should be on an individual licence regime. However, the possibility of a general authorisation regime under sharing conditions that protect the other users of spectrum in this band (e.g. EESS/SRS *and fixed services*) is not excluded.

    - the Commission should include as part of any technical harmonisation for the 26 GHz band, in high level terms, the requirements to maintain the possibility for continued development of incumbent satellite services (FSS and EESS/SRS) *and fixed services (fixed links and fixed wireless access)*. Future earth stations should be authorised based on transparent, objective and proportionate criteria to safeguard their future operations and ensuring that they are unlikely to have a significant impact on 5G deployment and coverage. Member States will remain fully responsible for granting or rejecting authorisation to a new satellite earth station application.

    - Member States should make by 2020 a sufficiently large portion of the band, e.g. 1 GHz, available for 5G in response to market demand *and technical study results*, taking into account that 5G deployment in this frequency range is expected to be used for local coverage *and having due regard to current use and technological innovation potential*.

    - Regulatory flexibility for the progressive release of the 26 GHz band will facilitate an efficient introduction of 5G without having an unnecessary negative impact on the current users of the band. Member States should plan any migration of fixed links necessary for ensuring the availability of the band for 5G, taking into account the geographical dimension of the market demand for 5G *as well as technical study results. Research to enable regulatory flexibility in this band should be supported by the research work-programmes managed by the Commission.*

10. **The RSPG is of the opinion** that general authorised frequency use can be an important breeding ground for innovation and contributes towards a dynamic market environment. The application of a general authorisation regime is foreseen in the 66-71 GHz band which could be an important band for 5G.

11. ***The RSPG notes*** *that enforcement of licence conditions will be key to ensuring that the successful introduction of 5G occurs swiftly and efficiently.* ***The RSPG recommends*** *that Member States specify these conditions with the greatest possible clarity and develop appropriate enforcement strategies in the context of their 5G roadmaps, subject to public consultation.*